

10-5-00

WYC:dkc

EXPRESS MAIL LABEL NO. EL696454130US

Date of Deposit: October 4, 2000

PATENT

Attorney's Ref. No. 60304

jc921 U.S. PTO  
09/679262  
10/04/00

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box PATENT APPLICATION  
TO THE ASSISTANT COMMISSIONER FOR PATENTS  
Washington, D.C. 20231

Transmitted herewith for filing is the patent application of:

Inventor(s): Geoffrey B. Rhoads

For: ELECTRONIC COMMERCE USING OPTICAL INPUT DEVICE

Enclosed are:

- ☒ 5 pages of specification, 3 pages of claims, an abstract and a Combined Declaration and Power of Attorney.

For	Claims filed	FILING FEE			Rate	Basic Fee
		Number Allotted		Number Extra		
Total Claims	11	20	=	0	\$18.00	0
Independent Claims	3	3	=	0	\$80.00	0
TOTAL FILING FEE			=			\$710.00

- ☒ Please return the enclosed postcard to confirm that the items listed above have been received.

Respectfully submitted,

DIGIMARC CORPORATION

By

William Y. Conwell  
Registration No. 31,943

Date: October 4, 2000

Digimarc Corporation  
19801 SW 72nd Avenue, Suite 250  
Tualatin, OR 97062  
Phone: 503-885-8699

**ELECTRONIC COMMERCE USING OPTICAL INPUT DEVICE**Related Application Data

5 This application claims priority from provisional application 60/158,015, filed October 6, 1999. This application is also a continuation-in-part of copending application 09/292,569, filed April 15, 1999, which claims priority from provisional application 60/082,228, filed April 16, 1998.

Description

10 The present disclosure memorializes certain improvements to the subject matter detailed in pending application 09/343,104 (June 29, 1999), and 09/292,569 (April 15, 1999), the disclosures of which are incorporated by reference.

15 The cited '104 application details a variety of systems in which objects interact with computer devices. The objects can be physical objects, marked with machine-readable indicia, such as digital watermarks. Optical input devices, such as webcams, are used to capture image data from the object, so that the computer device can recognize the object and respond accordingly. One exemplary object is a paper catalog from which merchandise can be ordered.

20 In the '104 application, the disclosed technology was referred to by the name "Bedoop." The present assignee now markets such technology under the Digimarc MediaBridge name. The former term is used in this disclosure.

25 One form of optical input device usable in such systems is a mouse-like peripheral that includes an optical sensing system. The optical sensing system can comprise a 1D array of plural optical sensors (e.g., CCD, CMOS, etc.), or a 2D array. Such devices are already known in other contexts, e.g., the Microsoft IntelliMouse with IntelliEye technology. That device includes a multi-element CMOS optical sensor integrated on an IC with  
30 various detector and processing circuitry, operating in conjunction with a short focal

length imaging lens and an LED illumination source. The circuitry tracks movement of patterns across the sensor's field of view, by which the mouse's movement can be deduced. The Microsoft product collects 1500 data sets per second – a frame rate much higher than is needed in most embodiments of the assignee's Bedoop technology.

5

Such a mouse-like peripheral can omit the buttons and position-sensing features commonly provided on traditional mice, yielding a simple desk-facing palm camera that generates frames of data corresponding to a small area under the sensor portion of the mouse. More typically, however, the peripheral includes the buttons, roller wheels, and/or

10 X-/Y- position sensing arrangements of traditional mice so that button and positional forms of data input can be exploited in interacting with the Bedoop application.

The optical data collected by the sensor can be processed within the peripheral's processor to extract the steganographically encoded binary Bedoop data therefrom. Or

15 this processing burden can be undertaken by the associated computer system, with the peripheral simply processing and formatting the raw sensor data into sequential frames of image data to be output to that system.

Any form of hand-held scanner - whether of the type just described or others known in

20 the art - offers a convenient way to interact with catalog advertising. Imagine a traditional paper catalog, e.g., from L.L. Bean, Inc., or Lands End. Each image in the catalog is Bedoop-encoded with a code that identifies the depicted product. A user browsing through the catalog, on seeing a product of interest, places the scanner over the picture (and optionally may be required to push a button or otherwise signal to initiate

25 further processing). The scanner detects the Bedoop data and relays it to an associated computer (optionally with data identifying the consumer). The computer polls a remote server computer maintained by the merchant, which responds with data corresponding to the item depicted in the scanned image. This returned data can include data indicating the sizes available, data indicating the colors available, data indicating the variant styles

30 available, flag bits indicating whether each item is in stock, etc. This returned data can be

presented to the consumer – typically on a display device but alternatively in audible form.

Preferably, the customer's body measurements (waist size, inseam length, neck size, etc.) are stored in a user profile, either on the local computer or at the merchant's server computer. This allows the system to customize the data presented to the user – e.g., showing the color options and availability only for the depicted shirt in a 16 inch neck and a 34 inch sleeve length.

If necessary, the user can select among the color or style options, using the handheld input device (either buttons, gestures, etc.), or any other input device. Or the item may be one for which no further specifications are needed. In either event, once the desired product has been sufficiently specified, the user can signal the system to place the order. Payment and shipping details can be arranged through any of the great variety of techniques known in the art, e.g., by charging to a credit card number and shipping to an address on-file with the merchant.

Some department stores and clothing retailers offer “personal shoppers” to perform various services. For example, a customer who is purchasing a dress may ask a personal shopper for assistance in selecting shoes or accessories that complement the dress.

A Bedoop-encoded garment tag on the dress can be employed to obtain similar assistance. In response to such a tag, a Bedoop system can query a database to obtain a mini-catalog of clothes and accessories that have previously been identified as complementing the dress identified by the tag. These items can be individually displayed on a screen associated with the system, or a virtual model wearing the dress - together with one or more of the recommended accessories - can be synthesized and depicted. The shopper may quickly review the look achieved by the model wearing the dress with various different pairs of shoes, etc., by repeatedly activating a user interface control (by mouse, touch screen, or garment tag gestures) to cycle through different combinations.

5 A shopper's credit card can be Bedoop-encoded so as to lead Bedoop systems of particular stores (i.e., stores pre-authorized by the shopper) to a profile on the shopper (e.g., containing size information, repeat purchase information, return history, style/color preferences, etc.).

10 While scanning peripherals of the type described above are typically wired to an associated host system, wireless links (e.g., radio, infrared, ultrasonic, etc.) can of course be used, freeing the user from the constraint imposed by the cable.

15 Another use of the technology detailed in the '104 application (and other applications and patents of the present assignee, including patent 5,841,886 – incorporated herein by reference) is to control building access (or facility access, or room access, etc.) through a combination of an ID card, Bedoop technology, and proximity detection technology.

20 The ID card can be a badge or the like having a steganographically-encoded photograph of the bearer. The card further includes a proximity ID device, such as an unpowered electronic circuit that is excited and detected by a radiant field from an associated proximity detector, providing a unique signature signal identifying a particular individual.

25 The building can be provided with an image sensor (such as a video camera or the like), an associated Bedoop detection system, and the proximity detector. When a user wearing the badge approaches, the proximity detector signals the camera to capture image data. The Bedoop detection system identifies the badge photograph (e.g., by clues as are described in the prior applications, or without such aids), captures optical data, and decodes same to extract the steganographically-embedded data hidden therein. The access control system then checks whether the badge ID discerned from the proximity sensor properly corresponds to the Bedoop data extracted from the photograph on the badge. If so, access is granted; if not, the data is logged and an alarm is sounded.

By such arrangement, premises security is increased. No longer can proximity-based access badges be altered to substitute the picture of a different individual. If the photo is swapped, the proximity system ID and the embedded photo data will not match, flagging an unauthorized attempted access.

5

The same principles are applicable in many other contexts – not limited to RF-based proximity detection systems. For example, the data decoded from the photograph can be compared against other forms of machine-sensed personal identification associated with the badge. These include, but are not limited to, bar code IDs, mag-stripe ID cards, smart cards, etc. Or the comparison can be with an identification metric not associated with the badge (e.g., retinal scan, voice print, or other biometric data).

10

Having described and illustrated the principles of our inventions with reference to specific embodiments, it will be recognized that the principles thereof can be implemented in many other, different, forms. Moreover, the particular combinations of elements and features in the above-detailed embodiments are exemplary only; the interchanging and substituting of these teachings with teachings in the incorporated-by-reference applications and patent are also contemplated.

15

**WE CLAIM**

1. An electronic commerce method comprising:

providing a printed catalog that includes an image of an article offered for sale by a merchant, wherein the image is steganographically encoded with plural-bit binary data;  
5       optically sensing the image to produce image data corresponding thereto;  
      decoding the steganographically encoded data from the image data; and  
      electronically ordering the article from the merchant by use of said decoded data,  
wherein said ordering makes use of earlier-stored customer profile information.

10       2. The method of claim 1 in which the customer profile information includes clothing size data.

3. The method of claim 2, further comprising:

processing the decoded data for transmission to a remote merchant computer, said  
15       processing including supplementing the decoded data with supplemental data  
corresponding to the customer;

transmitting the processed data to the remote merchant computer;

receiving first order data from the remote merchant computer, responsive to the  
transmitted processed data;

20       presenting the first order data to the customer;

receiving from the user further input selecting among options included in the first  
order data; and

transmitting said further input to the remote merchant computer.

25       4. The method of claim 3 in which the supplemental data includes the customer profile information.

5. The method of claim 3 in which the supplemental data includes data  
identifying the customer.

30

6. An electronic commerce method comprising:

providing a printed catalog that includes an image of an article offered for sale by a merchant, and machine-readable indicia representing multi-bit data associated with said article;

- 5           optically sensing the indicia to produce image data corresponding thereto;  
          decoding the multi-bit data from the image data; and  
          transmitting at least a portion of said multi-bit data to a first computer, together  
with data identifying the user;  
          transmitting data from the first computer to a second computer, said data serving  
10   to identify the article;  
          presenting selection data from the second computer to a user, said selection data  
representing at least one of (a) colors, (b) styles and (c) sizes associated with said article;  
and  
          receiving input from the user selecting among the presented selection data, and  
15   transmitting same to the merchant.

7. The method of claim 6 which includes consulting earlier-stored user profile data, and customizing the selection data presented to the user in accordance with said profile data.

8. The method of claim 6 that includes sensing the indicia with a peripheral device that includes an optical sensor and a wireless link to an associated processing device.

9. The method of claim 6 in which the presenting includes transmitting selection data from the second computer to a user computer.

10. An electronic commerce method comprising:

scanning machine-readable indicia on a tag associated with a garment;  
30   decoding multi-bit data from said scanned indicia;



through use of at least a portion of said multi-bit data, identifying clothes or accessories that may complement said garment.

11. The method of claim 10 that includes presenting at least certain of said  
5 clothes or accessories to a user on a display screen, using a synthesized model that also includes said garment.

**ELECTRONIC COMMERCE USING OPTICAL INPUT DEVICE**Abstract of the Disclosure

5 Sensing of machine readable indicia associated with a catalog permits on-line ordering of merchandise. A profile of user-specific data (e.g., clothing sizes) can be employed to customize the transaction. Sensing of such indicia on a garment tag permits a collection of complementary clothing or accessories to be presented to a user for review (e.g., by display of a virtual model wearing the garment and some of the clothing/accessories).

## COMBINED DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled ELECTRONIC COMMERCE USING OPTICAL INPUT DEVICE, the specification of which

☒ is attached hereto.

☐ was filed on \_\_\_\_\_ as Application No. \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56. If this is a continuation-in-part application filed under the conditions specified in 35 U.S.C. § 120 which discloses and claims subject matter in addition to that disclosed in the prior copending application, I further acknowledge the duty to disclose material information as defined in 37 CFR § 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT International application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT International application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

60/082,228	4/16/98
60/158,015	10/6/99
Application Number	Filing Date

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or § 365(c) of any PCT International application(s) designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT International filing date of this application:

09/292,569	4/15/99	Pending
(Application No.)	(Filing Date)	(Status: patented, Pending, abandoned)

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from \_\_\_\_\_ as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application, to file a corresponding international application, and to transact all business in the Patent and Trademark Office connected therewith:

William Y. Conwell	Reg. No. 31,943
Joel R. Meyer	Reg. No. 37,677
Thomas M. Horgan	Reg. No. 33,183
Elmer Galbi	Reg. No. 19,761

Address all telephone calls to William Y. Conwell at telephone number (503) 968-0443.  
Address all correspondence to:

William Y. Conwell  
DIGIMARC Corporation  
Digimarc Corporation  
19801 SW 72nd Avenue, Suite 250  
Tualatin, OR 97062

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole or First Inventor: Geoffrey B. Rhoads

Inventor's Signature \_\_\_\_\_

\_\_\_\_\_ Date

Residence: West Linn, Oregon

Citizenship: USA

Post Office Address: 2961 SW Turner Road, West Linn, Oregon 97068